Networking and Information Technology Research and Development Program

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Networking and Information Technology R&D Program

- Coordinated, focused long-term interagency R&D in information technologies

- Evolved from the Federal HPCC, CIC, NGI, and IT R&D programs

- $2 billion multi-agency NITRD Program
  - 12 agencies and departments coordinated via a "virtual agency" coordination/management structure
  - Coordinated by the National Coordination Office for Information Technology Research and Development

- Assessed by the President's Information Technology Advisory Committee
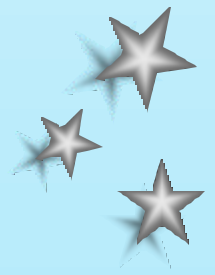
Publications

- Annual publication of the Supplement to the President's Budget also known as the "BLUE BOOK", describes the NITRD Program

  http://www.itrd.gov/pubs/blue03/03BB-final.pdf

- President's Information Technology Advisory Committee (PITAC) Reports

  Transforming Access to Government Through Information Technology
  http://www.itrd.gov/pubs/pitac/pres-transgov-11sep00.pdf

  Developing Open Source Software to Advance High End Computing
  http://www.itrd.gov/pubs/pitac/pres-oss-11sep00.pdf

  Digital Libraries: Universal Access to Human Knowledge
  http://www.itrd.gov/pubs/pitac/pitac-dl-9feb01.pdf

  Transforming Health Care Through Information Technology
  http://www.itrd.gov/pubs/pitac/pitac-hc-9feb01.pdf

  Using Information Technology To Transform the Way We Learn
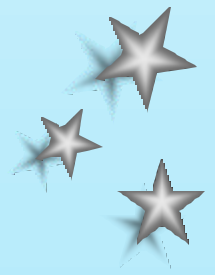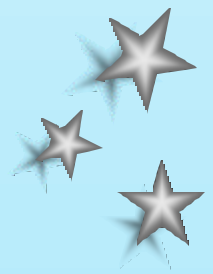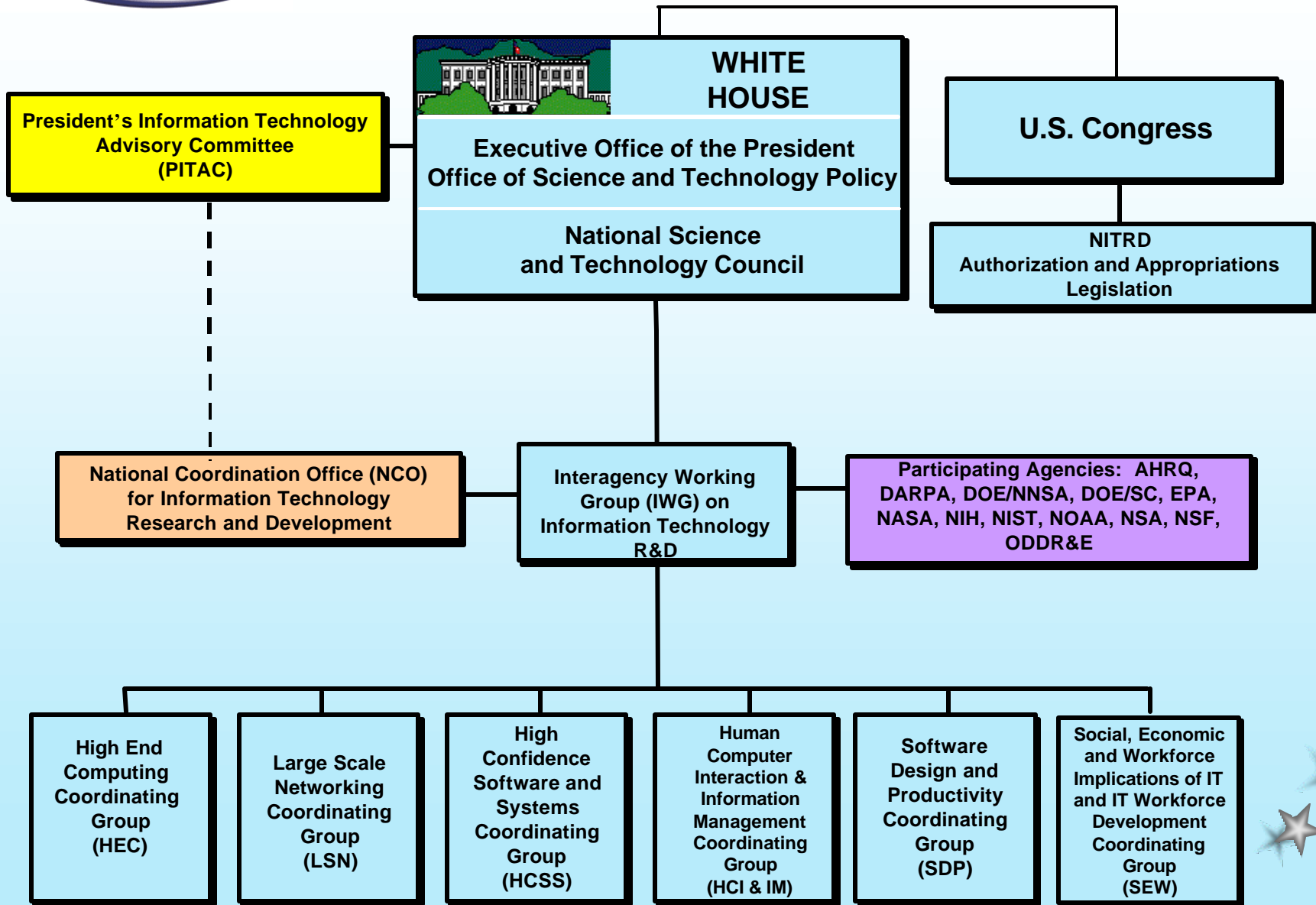 http://www.itrd.gov/pubs/pitac/pitac-tl-9feb01.pdf
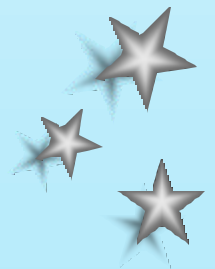
Participating Agencies and Departments

- National Science Foundation (NSF)
- National Institutes of Health (NIH)
- Defense Advanced Research Projects Agency (DARPA)
- National Aeronautics and Space Administration (NASA)
- Department of Energy Office of Science (DOE/SC)
- National Security Agency (NSA)
- National Institute of Standards and Technology (NIST)
- National Oceanic and Atmospheric Administration (NOAA)
- Office of the Director of Defense Research and Engineering (ODDR&E)
- Agency for Health Research and Quality (AHRQ)
- Environmental Protection Agency (EPA)
- Department of Energy National Nuclear Security Administration (DOE/NNSA)

NITRD Program Coordination

President's Information Technology Advisory Committee (PITAC)

WHITE HOUSE

Executive Office of the President Office of Science and Technology Policy

National Science and Technology Council

U.S. Congress

NITRD Authorization and Appropriations Legislation

National Coordination Office (NCO) for Information Technology Research and Development

Interagency Working Group (IWG) on Information Technology R&D

Participating Agencies: AHRQ, DARPA, DOE/NNSA, DOE/SC, EPA, NASA, NIH, NIST, NOAA, NSA, NSF, ODDR&E

High End Computing Coordinating Group (HEC)

Large Scale Networking Coordinating Group (LSN)

High Confidence Software and Systems Coordinating Group (HCSS)

Human Computer Interaction & Information Management Coordinating Group (HCI & IM)

Software Design and Productivity Coordinating Group (SDP)

Social, Economic and Workforce Implications of IT and IT Workforce Development Coordinating Group (SEW)

Interagency Working Group (IWG) on IT R&D

- Serves as the internal deliberative organization of the NSTC for networking and information technology R&D policy, program, and budget guidance

- Provides technical assistance to and coordinates agency response to recommendations of the President's Information Technology Advisory Committee

- Membership consists of representatives from twelve agencies/departments, OSTP, OMB, and the NCO
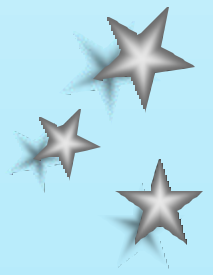
Large Scale Networking (LSN) (1)

- Priorities for research programs in FY03 include:
    - Networking research into basic technologies, optical networking, services, and applications
    - Networking infrastructure for production, experimental, and research networks
    - Network middleware and Grid research
    - Advanced networking for data-intensive science, e.g. GriPhyN (Grid Physics Network)
    - Security
    - Collaboration technologies
    - Network monitoring and measurement
    - Wireless, ad hoc, and sensornet capabilities
    - Automated resource management
    - Standards and specifications
    - Crisis response and Critical Infrastructure Protection
   - Education and training

Large Scale Networking (LSN) (2)

- LSN includes three working teams
  - Joint Engineering Team (JET)
  - Middleware and Grid Infrastructure Coordination (MAGIC)
  - Networking Research Team (NRT)
- The LSN agencies cooperate and share information through:
  - Joint peer review committees for programs in multiple agencies
  - Joint PI meetings
  - Joint workshops and meetings
  - Coordination meetings for specific objectives such as providing experimental networking for the high energy physics community and other research communities
  - Promotion of transparency by fostering best practices for technical capabilities, e.g. collaboration infrastructure and security
  - Identification of resources and Points of Contact for areas of common interest
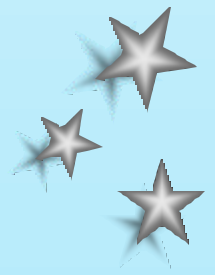
- Long-range breakthroughs in HEC architectures and component technologies; computers capable of solving the most challenging computational problems

- HEC infrastructure and applications resources for Federal and academic research
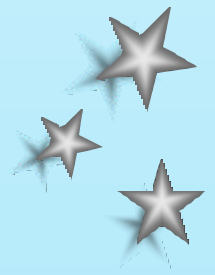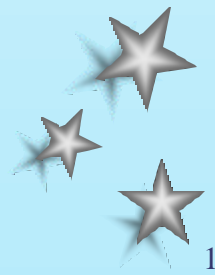
"Due to its impact on a wide range of federal agency missions ranging from national security and defense to basic science, high end computing—or supercomputing —capability is becoming increasingly critical. Through the course of 2003, agencies involved in developing or using high end computing will be engaged in planning activities to guide future investments in this area, coordinated through the NSTC. The activities will include the development of interagency R&D roadmap for high-end computing core technologies, a federal high-end computing capacity and accessibility improvement plan, and a discussion of issues (along with recommendations where applicable) relating to federal procurement of high-end computing systems. The knowledge gained for this process will be used to guide future investments in this area. Research and software to support high end computing will provide a foundation for future federal R&D by improving the effectiveness of core technologies on which next-generation high-end computing systems will rely."[1]
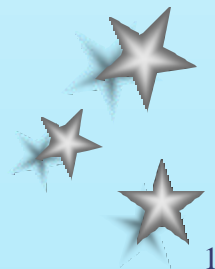
Source:

[1] FY 2004 President's Budget

- 2001 PITAC report on OSS for high-end computing urged Federal leadership

- Agency research now incorporating OSS:
  - Grid efforts (DOE, NASA, NSF) using DOE's Globus and other OSS middleware
  - DOE SciDAC and DOE/NNSA programs require OSS in research criteria
  - 2002 DoD-funded Mitre report on OSS showed broad usage (more than 100 different applications)
  - NSF funding studies of economic, IP aspects

Activities in Open Source Software (OSS) (2)

- NITRD exploring OSS impacts and implications:
  - DOE work in licensing issues in advanced research
  - Interagency Working Group (IWG) on Information Technology Research and Development (IT R&D) co-sponsored January 2003 international conference on OSS effects on government, industry, research, education, and communications
  - Social Economic, and Workforce Implications of IT and IT Workforce Development (SEW) Coordinating Group holding briefings on OSS for NITRD reps
  - NCO supports highly successful "Expedition Workshops" series sponsored by Federal CIO Council/GSA. Monthly meetings bring technology users together with developers of leading-edge OSS applications to improve e-government services for citizens
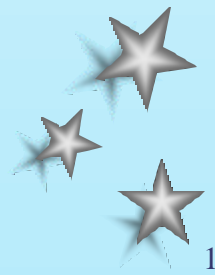
For Further Information

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Or visit us on the Web:

www.itrd.gov